Cl **127** *SC* **127.2.6.2.1** *P* **85** *L* **8** # i-1

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

*** Comment submitted with the file 93380900003-Figure_127_4_comment.pdf attached ***

There are two issues caused by the asynchronous reset used for the Figure 127-4 'PCS Word Encode and Word-to-Octets' and Figure 127-5 'PCS transmit ordered set' state diagrams. The first is that, depending on the relationship between reset removal, the rising edge of TX_CLK, and the pulse high time of TX_CLK, the data output by the PCS Word Encode process may be in the incorrect order. The second is that reset removal during transmission of packet can result in the transmission of a truncated packet. Please see attached file Figure_127_4_comment.pdf for more details.

SuggestedRemedy

Please see attached file Figure_127_4_comment.pdf and for more details.

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **4** # i-2

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A**

IEEE Std 802.3-2015/Cor 1 was published in 2017 and The Working Group Chair has now announced the assumed approval order for the next three amendments as:
IEEE P802.3bs - Amendment 10
IEEE P802.3cc - Amendment 11
IEEE P802.3cb - Amendment 12

SuggestedRemedy

Change "Amendment:" to "Amendment 12:" on:
Page 1, line 14
Page 11, line 3
Page 27, line 4

Change the list of amendments on Page 1 line 4 and line 32 from:
"... IEEE Std 802.3bvTM-2017, IEEE Std 802.3btTM-20xx, IEEE Std 802.3bsTM-20xx, IEEE Std 802.3-2015/Cor 1-20xx" to:
"... IEEE Std 802.3bvTM-2017, IEEE Std 802.3-2015/Cor 1-2017, IEEE Std 802.3bsTM-20xx, and IEEE Std 802.3ccTM-20xx"

On page 13:
Move the summary for Corrigendum 1 to be immediately after the summary for 802.3bv, change the date to 2017 and replace "Corrigendum 1 space - space" with "Corrigendum 1 em-dash"
Remove the summary for 802.3bt
In the summary for 802.3bs change TBD to 10
Add the summary for 802.3cc as Amendment 11 after 802.3bs and before 802.3cb
Add "Amendment 12 em-dash" to the beginning of the summary for 802.3cb

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **35** # i-3

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A**

"Working Group recirculation ballot." should be "Sponsor ballot recirculation"

SuggestedRemedy

Change "Working Group recirculation ballot." to "Sponsor ballot recirculation"

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **3** *L* **2** # i-4

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html includes: Physical Layer (always capped)

SuggestedRemedy

Change "physical layer" to "Physical Layer"

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **6** *L* **3** # i-5

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

The spelling of "Implementors" does not match the spelling in the 802.3 template.

SuggestedRemedy

Change Implementors" to "Implementers"

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **11** *L* **3** # i-6

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

"IEEE P802.3cb-20xx" should be "IEEE Std 802.3cb-20xx"

SuggestedRemedy

Change "IEEE P802.3cb-20xx" to "IEEE Std 802.3cb-20xx"

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1** *P* **28** *L* **3** # i-7

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

The Working Group Chair has now announced the assumed approval order for the next three amendments as:
IEEE P802.3bs - Amendment 10
IEEE P802.3cc - Amendment 11
IEEE P802.3cb - Amendment 12

SuggestedRemedy

Remove the editor's note and take account of this assumed approval order through the rest of the draft.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4.107** *P* **29** *L* **3** # i-8

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

The Working Group Chair has now announced the assumed approval order for the next three amendments as:
IEEE P802.3bs - Amendment 10
IEEE P802.3cc - Amendment 11
IEEE P802.3cb - Amendment 12

SuggestedRemedy

Remove the editor's note.
Change the editing instruction to: "Change 1.4.107 (as modified by IEEE Std 802.3bs-20xx) as follows:"
Change the base text of the definition to that of P802.3bs.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **33** *L* **41** # i-9

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

There is no need to adjust the reserved rows as 802.3bs contains:
0 1 1 1 1 0 0 = reserved
0 1 1 1 0 1 1 = reserved
Also, http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html includes:
"The editing instructions list only amendment(s) that have edited the specific part (e.g. paragraph) of the subclause being changed." and 802.3bs has edited both rows.

SuggestedRemedy

Change the editing instruction to:
"Change the description for bits 1.7.6:0 in Table 45-7 (as modified by IEEE Std 802.3bs-20xx) as follows (unchanged rows not shown):"

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.1.6** *P* **65** *L* **29** # i-10

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

"is comprised of" is poor English. Recent amendments have used "comprises" instead. For example see 64.1.5, 77.1.5, and 103.1.4.

SuggestedRemedy

Change "The body of this standard is comprised of state diagrams, ..." to "The body of this standard comprises state diagrams, ..."
Make the same change in 127.2.6

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.1.6** *P* **113** *L* **27** # i-11

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html includes:
common-mode (when used as an adjective)

SuggestedRemedy

Change "common mode" to "common-mode":
Page 113, lines 27 and 41
Page 114, line 24
Page 122, line 11
Page 145, line 2

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.1.8** *P* **114** *L* **39** # i-12

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html includes:
low-frequency

SuggestedRemedy

Change "low frequency" to "low-frequency"

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.3.1.5** *P* **174** *L* **47** # i-13

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

Comment i-54 against P802.3bx D3.0 changed all instances of "AC coupled" to "AC-coupled" throughout the 802.3-2015 standard.

SuggestedRemedy

Change "AC coupled" to "AC-coupled" page 174, line 47 and Page 215, line 12.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.6.3** *P* **225** *L* **10** # i-14

Smith, Daniel — Seagate Technology L

Comment Type **E** *Comment Status* **A**

Tt set to 42 ps for 5G," does not need to be stated as 5G because this entire subclause is understood to be 5 Gbps.

SuggestedRemedy

Change " Tt set to 42 ps for 5G," to "Tt set to 42 ps,".

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.3.4.3** *P* **185** *L* **26** # i-15

Smith, Daniel — Seagate Technology L

Comment Type **E** *Comment Status* **A**

Incorrect naming of signal name above the Termination box.

SuggestedRemedy

On the left side of Figure 128A-11, left side, above Termination box:
TP1H-D s/b TP1D-H.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.6.3** *P* **226** *L* **26** # i-16

Smith, Daniel — Seagate Technology L

Comment Type **E** *Comment Status* **A**

Incorrect naming of signal name above the Termination box.

SuggestedRemedy

In Fig 130A-12, left side,above Termination box: TP3H-D s/b TP1D-H.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.4** *P* **92** *L* **5** # i-17

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

*** Comment submitted with the file 93546600003-Figure_127_8_comment.pdf attached ***

Assuming that Energy Efficient Ethernet is supported, if /I/ transitions to /LI/, the Figure 128-8 state diagram will still enter the RX_K state since the first character of the /LI/ ordered set is also K28.5. It will then transition through the RX_SLEEP and START_TQ_TIMER states to the LP_IDLE_D state when the D6.5 or D26.4 character, the second character of the /LI/ ordered set, is received. It will then transition between the LPI_K state, entered when a K28.5 character is received, and the LP_IDLE_D state, entered when a D6.5 or D26.4 character is received.

It however is only on entry to the RX_SLEEP state that rp_dv is set to zero, rd_er is set to one, and rpd is set to 0x01, signalling LPI on the 2.5GPII receive path. Since this is on the second character of the /LI/ ordered set, the first octet of the /LI/ ordered set is replaced with Idle on the 2.5GPII.

Similarly, at the end of /LI/ on the transition to /I/, the Figure 128-8 state diagram will still enter the LPI_K state since the first character of the /I/ ordered set is K28.5, and only transition to the IDLE_D state when the D5.6 or D16.2 character, the second character of the /I/ ordered set, is received.

Start of LPI however, due to the first character being signalled as an Idle on the receive 2.5GPII, will not maintain alignment, as there will be an odd number of Idle from the end of the previous packet. As a result of the subclause 127.2.4.4 rules, specifically item (b), the Deficit Idle Count will have to be adjusted.

While there is no function impact it is not in agreement with the statement that '... in a properly behaved system, deletion of idle symbols from rpd<7:0> onto wd_rpd<31:0> should only occur at most once at the beginning of link, and afterwards no further insertions or deletions are required.' found in the penultimate paragraph of subclause 127.2.4.4.

SuggestedRemedy

See attached document <Figure_127_8_comment.pdf>.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4** *P* **28** *L* **20** # i-18

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **E** *Comment Status* **A**

Instruction is to insert 'before 1.4.74a' and the insertion is numbered "1.4.74aa 2.5GBASE-KX:..." It should be numbered "1.4.74" since it is before "1.4.74a" instead?

SuggestedRemedy

As cited in the 'Comment' column.

Response *Response Status* **U**

ACCEPT.

Cl **125** *SC* **125.3** *P* **62** *L* **34** # i-19

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **TR** *Comment Status* **R**

In "Table 125-3", add a note on how the "Maximum (bit time)" of "1024" for "Sublayer 2.5GBASE-KX PHY" which is the combination of 'PMA & PMD' like "768 + 256" bit times resepectively.

SuggestedRemedy

As cited in the 'Comment' column.

Response *Response Status* **U**

REJECT.

It is well understood the 2.5GBASE-KR PHY is a combination of PMA and PMD. References in the comment column take the reader to separate numbers for PMA and PMD.

Cl **125** *SC* **125.3** *P* **62** *L* **38** # i-20

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **TR** *Comment Status* **A**

In "Table 125-3", The "Maximum (bit time)" of "512" for "Sublayer 5GBASE-KR PMD" is not specifically shown in sub-clause "130.4" as referred. Add bit time.

SuggestedRemedy

As cited in the 'Comment' column.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Use bit time of 1024 from 130.4 text.

Cl **127** *SC* **127** *P* **63** *L* **5** # i-21

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **ER** *Comment Status* **A**

Minor edit to coordinate with 'page 31, line 20' insertion as shown.

SuggestedRemedy

Revise as: "...(PMA) sublayer for 2.5 Gb/s 8B/10B, type 2.5GBASE-X"

Response *Response Status* **U**

ACCEPT.

Cl **129** *SC* **129** *P* **125** *L* **2** # i-22

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **ER** *Comment Status* **A**

Minor edit to coordinate with 'page 31, line 25' insertion as shown.

SuggestedRemedy

Revise as: "...(PMA) Sublayer for 5 Gb/s 64B/66B, type 5GBASE-R"

Response *Response Status* **U**

ACCEPT.

Cl **129** *SC* **129.7.6.4** *P* **135** *L* **48** # i-23

BUCANEG, DEMETRIO JR Hawaiian Electric Com

Comment Type **GR** *Comment Status* **A**

Sub-clause "129.7.6.4" is missing. Suggest renumbering sub-clauses if not existing or add if inadvertently omitted.

SuggestedRemedy

As cited in the 'Comment' column.

Response *Response Status* **U**

ACCEPT.

Cl **69A** *SC* **69A.2** *P* **161** *L* **24** # i-24

Healey, Adam Broadcom Ltd.

Comment Type **T** *Comment Status* **A**

The difference between Figure 69A-1 and the proposed Figure 69A-2 is the removal of transmitter control in the latter. The transmitter control function is defined in 69A.2.4 and states that "For 10GBASE-KR testing, the pattern generator is controlled by transmitter control.". Wouldn't it be much simpler to just state at the end of 69A.2.4 that 2.5GBASE-KR and 5GBASE-KR do not use the transmitter control block?

SuggestedRemedy

Remove the proposed changes to 69A.2 (including Figure 69A-2). Add the following sentence to the end of 69A.2.4: "For 2.5GBASE-KX and 5GBASE-KR testing, transmitter control is not used."

Response *Response Status* **C**

ACCEPT.

Cl **69A** *SC* **69A.3** *P* **163** *L* **18** # i-25

Healey, Adam Broadcom Ltd.

Comment Type **ER** *Comment Status* **A**

This paragraph states exactly the same thing as the previous paragraph except it begins with "For 5GBASE-KR..." instead of "For 2.5GBASE-KX...". Further, it restates steps that are common to 10GBASE-KR testing later in the subclause. This seems like needless duplication.

SuggestedRemedy

The only portion of the procedure that appears to be different between 2.5GBASE-KX, 5GBASE-KR, and 10GBASE-KR is the use of transmitter control.

To that end, delete the first two paragraphs starting at line 13 (starting with "For 2.5GBASE-KX testing, ..." and "For 5GBASE-KR testing, ..."). <done>

At the end of the paragraph starting "For 10GBASE-KR testing, ..." add the following sentence: "Training patterns and transmitter control are not used for 2.5GBASE-KX and 5GBASE-KR testing.". <done>

Also consider removing the reference "(see Figure 69A-2)" or changing it to "(see Figure 69A-1)" if Figure 69A-2 is removed as part of the response to a separate comment.

Response *Response Status* **C**

ACCEPT.

Cl **69A** *SC* **69A.2.2** *P* **163** *L* **3** # i-26

Healey, Adam Broadcom Ltd.

Comment Type **T** *Comment Status* **A**

It is unclear why the relaxation of the test channel return loss (from 20 dB minimum) is warranted for 2.5GBASE-KX and 5GBASE-KR. The test fixture return losses defined in 128.7.1.2 and 130.7.1.2 are considerably better that what is required for the test channel. The test channel return loss is intended to be tightly controlled to foster consistency in interference tolerance measurements.

SuggestedRemedy

Remove (or justify) the relaxation in the test channel return loss requirement.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the test channel return loss to 20 dB.

Cl **128B** *SC* **128B** *P* **189** *L* **6** # i-27

Healey, Adam Broadcom Ltd.

Comment Type **TR** *Comment Status* **A**

Annex 128B duplicates much of the content of Annex 69B. This is an interesting choice since the 2.5GBASE-KX and 5GBASE-KR requirements for interference tolerance testing we folded into Annex 69A rather than creating a new annex. It is not clear why the unique content of Annex 128B was not simply amended to Annex 69B. For example, 128B.1 through 3 are all copied verbatim with the exception of cross-references. The introductory material of 128B.4.1, 128B.4.2, and 128B.4.4 through 128B.4.6 are also common with the except of the table columns and charts specific to 2.5GBASE-KX and 5GBASE-KR. The insertion loss definition in 128B.4.3.1 and 128B.4.3.2 deviates in format from 69B.4.3 but there is no obvious reason why.

SuggestedRemedy

Remove Annex 128B and merge the unique content (table columns, figures, equations) into Annex 69B.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove Annex 128B and merge the unique content (table columns, figures, equations) into Annex 69A.

Cl **128** *SC* **128.7.1** *P* **110** *L* **20** # i-28

Healey, Adam Broadcom Ltd.

Comment Type **E** *Comment Status* **A**

"See the Equation ... and the Equation..." seems awkward.

SuggestedRemedy

Change to "See Equation ... and Equation...". This applies to both differential and common-mode return loss.

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.7.1** *P* **144** *L* **20** # i-29

Healey, Adam Broadcom Ltd.

Comment Type **E** *Comment Status* **A**

"Pre-cursor ratio" is described as "pre-cursor equalization ratio" in 72.7.1.11 where square wave method for equalization analysis is introduced. It may be worthwhile to emphasize this since a pre-cursor ISI ratio is defined in another amendment.

SuggestedRemedy

Change "pre-cursor ratio" to "pre-cursor equalization ratio". Similarly, in 130.7.1.11 (page 150, line 1) change "pre-equalization ratios" to "pre-cursor equalization ratio" and in Table 130A-1 (page 212, line 29) change "pre-cursor ratio" to "pre-cursor equalization ratio".

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.5.3** *P* **222** *L* **1** # i-30

Healey, Adam Broadcom Ltd.

Comment Type **E** *Comment Status* **R**

This is the 4th time signal-to-noise-and-distortion ratio (SNDR) is defined in this draft. The only thing that changes among the four definitions is the value of Np and the definition of the CTLE that is to be included (or in the case of 2.5GSEI drive output, not included). The rest of the text is redundant with the other 3 instances in the draft.

SuggestedRemedy

Consider eliminating the redundancy by changing 128A.3.3.3, 130A.3.6, and 120A.5.3 to refer to the definition in 128A.3.1.7 and state only the differences relative that procedure (e.g. Np value and/or CTLE inclusion/definition).

Response *Response Status* **C**

REJECT.

Proposed change in the comment does not contain sufficient detail that the comment resolution group can understand the specific changes that will satisfy the commenter.

Cl **128A** *SC* **128A.3.1.7** *P* **175** *L* **44** # i-31

Healey, Adam Broadcom Ltd.

Comment Type **TR** *Comment Status* **A**

In Table 128A-3, how does one go from -9.5 dB to 0 dB with a step size of 1 dB?

SuggestedRemedy

Is there a 0.5 dB step somehwere in the progression between -9.5 and 0 dB. If so, where? Clarify.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change step size to 0.5.

Cl **130A** *SC* **130A.3.6** *P* **215** *L* **34** # i-32

Healey, Adam Broadcom Ltd.

Comment Type **TR** *Comment Status* **A**

Np is not defined Table 130A-2. Presumably this was supposed to be Table 130A-1. However, it is not clear why the specification is fragmented so that Np is defined in Table 130A-1 and Dp is defined in this subclause. It would be better to keep this information together.

SuggestedRemedy

In item c), change "using Np from Table 130A-2" to "using Np = 8". Remove "- SNDR, Np=8" from Table 130A-1. Make similar changes for Table 130A-7 and 130A.5.3 as well as Table 128A-1 and 128A.3.1.7.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.3.6** *P* **216** *L* **12** # i-33

Healey, Adam Broadcom Ltd.

Comment Type **TR** *Comment Status* **A**

In Table 130A-2, how does one go from -14.5 dB to 0 dB with a step size of 1 dB?

SuggestedRemedy

Is there a 0.5 dB step somehwere in the progression between -14.5 and 0 dB. If so, where? Clarify.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change step size to 0.5.

[Editor's note added after comment resolution completed.

The comment response was corrected from ACCEPT to ACCEPT IN PRINCIPLE as there is text is provided in the response.]

Cl **130A** *SC* **130A.3.6** *P* **216** *L* **6** # i-34

Healey, Adam Broadcom Ltd.

Comment Type **ER** *Comment Status* **A**

The column heading "Reference" should be "Symbol" (see Table 93A-1). The minimum, maximum, and step values for "Continuous time filter, DC gain" are not all named "gDC". There should be single "gDC" in this cell aligned with the text "Continuous time filter...". Again, see Table 93A-1.

SuggestedRemedy

Correct per comment. Note the same issues also exist in Tables 128A-2 and 130A-8.

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.3.4.2** *P* **182** *L* **39** # i-35

Healey, Adam Broadcom Ltd.

Comment Type **T** *Comment Status* **A**

Rather than state "Np=3" here, which is only one of the parameters needed to measure SNDR, it may be better to add a reference to 128A.3.1.7 in item e) of the calibration procedure.

SuggestedRemedy

In item e), change "...required SNDR." to "...required SNDR (see 128A.3.1.7).". Delete "(Np = 3)" from the parameter column of the last row of Table 128A-8. Suggest similar changes to 128A.3.2.2 and Table 128A-3, 130A.4.2 and Table 130-4, and 130A.6.2 and Table 130A-10.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **4** # i-36

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **R**

IEEE Std 802.3bv-2017 is published and subsequent proposed amendments now have established amendment number order (bs, cc, cb).

SuggestedRemedy

Delete IEEE Std 802.3bt-20xx, add IEEE Std 802.3bc after 802.3bs. Also recommend deleting the publication update parenthetical at the end of the list.

Response *Response Status* **C**

REJECT.

The list of ammendments is being deleted at this point and will be filled out during publication preparation.

Cl **0** *SC* **0** *P* **1** *L* **14** # i-37

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

Amendment number has been assigned.

SuggestedRemedy

Insert amendment number "12" after "Amendment".

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **28** # i-38
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **R**

Redundant document list.

SuggestedRemedy

Delete the list so it reads: This draft is a proposed amendment to IEEE Std 802.3-2015. This amendment adds. . .

Response *Response Status* **C**

REJECT.

The list of ammendments and corrigendum composing the base document will be maintained here.

Cl **0** *SC* **0** *P* **3** *L* **2** # i-39
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

Awkward grammar

SuggestedRemedy

Change to read and management objects for the serial transfer of Ethernet format frames at 2.5 Gb/s and 5 Gb/s over electrical backplanes.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **11** *L* **3** # i-40
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

This box will be included in the published document, therefore, the document name should not be the project name draft, or reference the draft.

SuggestedRemedy

Change IEEE Std P802.3cb-20xx to IEEE Std 802.3cb-20xx. Delete the word Draft in the title.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **13** *L* **28** # i-41
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

IEEE Std 802.3bv-2017 is published and subsequent proposed amendments now have established amendment number order (bs, cc, cb).

SuggestedRemedy

Delete the description for 802.3bt. Amendment number for 802.3bs is 10. Insert the description for 802.3cc from its latest draft and describe it as Amendment 11 (if P802.3cc draft has not already done so), Add Amendment 12 to the beginning of the 802.3cb description.

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **27** *L* **3** # i-42
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

Amendment number has been assigned.

SuggestedRemedy

Insert amendment number "12" after "Amendment".

Response *Response Status* **C**

ACCEPT.

Cl **0** *SC* **0** *P* **27** *L* **10** # i-43
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

Typo?

SuggestedRemedy

Delete the period (full stop) at the end of the document title.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1** *P* **28** *L* **3** # i-44

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

IEEE Std 802.3bv-2017 is published and subsequent proposed amendments now have established amendment number order (bs, cc, cb).

SuggestedRemedy

Delete the Editor's Note.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.3** *P* **28** *L* **15** # i-45

Grow, Robert RMG Consulting

Comment Type **TR** *Comment Status* **A**

I can find a 2006 document, but cannot find the 2015 document. It is not appropriate to include a normative reference to a document that is not available publically. It also appears that footnote 22 in the base document requires update for SFF documents (a redirection from ftp.seagate.com to ta.snia.org should not be necessary).

SuggestedRemedy

Change footnote 22 of base document and include approriate information for how to get the new proposed SFF normative reference (if not SNIA, then a new footnote is required).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change reference to:

SFF-8482 - Specification for Serial Attachment 2X Unshielded Connector.

Add a footnote with the following link:
SFF documents are available from the Storage Networking Industry Association (www.snia.org/sff/specifications).

Cl **1** *SC* **1.4** *P* **28** *L* **38** # i-46

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

The proper insert point for 200G and 400G is after 2.5G terms (802.3 sort order places a "." before a zero). Specifying proper insert point will require coordination with P802.3bs D3.2 comment resolutions.

SuggestedRemedy

If P802.3bs updates subclause numbering, then 5G terms should come after 400G terms in P802.3bs.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Changes will be made if 802.3bs is available in time for our recirculation. Publication editors have indicated they will do renumbering during publication preparation.

Cl **1** *SC* **1.4** *P* **29** *L* **3** # i-47

Grow, Robert RMG Consulting

Comment Type **ER** *Comment Status* **A**

P802.3bs has been assigned Amendment 10.

SuggestedRemedy

Rewrite editors note, editing instruction and text for an edit to 802.3bs text. Suggest this note should still note the definition is being modified by P802.3bs, and base text is from P802.3bs/D3.2 (unless D3.3 is available before your editing is ready for ballot).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The base text for this change is from P802.3bs/D3.3 .

[Editor's note added after comment resolution completed.

Based on the comment response the editor's note has been deleted and replaced with editing instructions that reads 'Change the base text of the definition to that of 802.3bs as shown.']

Cl **45** *SC* **45** *P* **33** *L* **3** # i-48

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **A**

Intended publication order has been specified by our WG Chair.

SuggestedRemedy

Remove note and review subclause numbers based on the 9 published amendments and two proposed amendments assigned a lower amendment number.

Response *Response Status* **C**

ACCEPT.

Cl **73** *SC* **73.6.4** *P* **52** *L* **21** # i-49

RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **R**

The third paragraph of 73.6.4 is the subject of approved maintenance request 1283 (See http://www.ieee802.org/3/maint/requests/maint_1283.pdf).

The approval has resulted in changing this paragraph in 802.3cd D1.0.

As 802.3cb is expected to be included in the next 802.3 revision (and 802.3cd is expected to be an amendment of that revision), it would be beneficial to have the change implemented in 802.3cb. This would remove the need to add more PHYs to the long laundry list.

SuggestedRemedy

Per maintenance request 1283:

Replace the third paragraph of 73.6.4 with the following NOTE:

NOTE--Previous editions of this standard prohibited advertisement of PHYs that support operation over electrical backplanes with PHYs that support operation over copper cable assemblies.

In subclause 73.11.4.3, delete PICS item LE18.

Response *Response Status* **C**

REJECT.

Rationale for rejecting this comment is:

a) the text does seem to be correct in the context of P802.3cb

and

b) Significant advantage does not exist for pulling the text from P802.3cd and installing it P802.3cb at this time. Naturally P802.3cd will need to update its illustration of Clause 73 changes to account for the changes made in the P802.3cb [draft] amendment but it has ample time to do so. The time pressure on P802.3cb is greater.

Cl **73** *SC* **73.10.1** *P* **54** *L* **6** # i-50
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

Typo in newly inserted text: "link_stats" should be "link_status".

SuggestedRemedy

Fix per comment, items 2 and 3 in the list.

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.2** *P* **59** *L* **25** # i-51
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The editorial instruction is "change", but the newly Inserted text is not underlined.

SuggestedRemedy

Change the format of item d to underline.

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.2** *P* **59** *L* **23** # i-52
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

"bitwide" is "bit wide" in the base text. If this is a correction to should be stated in the editing instruction and formatted accordingly.

The suggested remedy assumes this is unintended.

SuggestedRemedy

Change "bitwide" to "bit wide".

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.3** *P* **59** *L* **33** # i-53
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The base text is incorrectly quoted.

In 802.3bz, the first paragraph ends with "is explained in the following paragraphs". Here it ends with "is explained as follows".

SuggestedRemedy

Correct the first paragraph to be the same as in 802.3bz.

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.3** *P* **60** *L* **6** # i-54
RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

Editorial instruction should be "replace", since the existing figure is replaced with a new figure.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **69** *SC* **69.1.2** *P* **46** *L* **4** # i-55
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

Text in figure 69-3 is in Times font. Similar figures in the base document (e.g. 69-1 and 69-2) use Arial font.

SuggestedRemedy

Change all text embedded in figure 69-3 to 8-point Arial font.

Response *Response Status* **C**

ACCEPT.

Cl **73** *SC* **73.1** *P* **51** *L* **7** # i-56
RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

"Change" instruction is not used for figures (per style manual). Figures can be replaced by new figures, using the "replace" instruction.

Also, this figure seems to be based on amendment 802.3by.

SuggestedRemedy

Change editing instruction to "replace".

Add "(as amended by 802.3by-2016)" after the figure number.

Response *Response Status* **C**

ACCEPT.

Cl **73** *SC* **73.1** *P* **51** *L* **27** # i-57
RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

The "25GMII" line appears in Times font, unlike the rest of the text.

SuggestedRemedy

Change to Arial font.

Response *Response Status* **C**

ACCEPT.

Cl **125** *SC* **125.1.4** *P* **61** *L* **38** # i-58
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The editing instruction is "change", but the new inserted rows are not underlined.

SuggestedRemedy

Format the rows for 2.5GBASE-KX and 5GBASE-KR in underlined font.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.1.2** *P* **64** *L* **27** # i-59
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

Some of the text in figure 127-1 is in Times font. Similar figures in the base document use Arial font.

SuggestedRemedy

Change all embedded text to Arial.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.1.4** *P* **65** *L* **19** # i-60
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

There is only one exception.

Also, in 125.1.2 the XGMII is described as using "a 32-bit-wide data path" while here it uses "an word-wide data path"

SuggestedRemedy

Change "The only exceptions are a) " to "The only exception is".

Change "an word-wide data path" to "a 32-bit-wide data path".

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.1.6** *P* **65** *L* **29** # i-61
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The first sentence says "The body of this standard is comprised of state diagrams, including the associated definitions of variables, constants, and functions".

This is obviously not true; the standard comprises many more than just state diagrams and associated definitions.

Furthermore, this subclause is out of place here; a similar subclause (127.2.6) appears right before the state diagram content. There is no need for this text in the introduction.

SuggestedRemedy

Delete the entire subclause 127.1.6.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **66** *L* **53** # i-62

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

The test says "(...) and transmits one 2.5GPII symbol and its associated transmit and transmit error at a time to the PCS Transmit Process"

Should "transmit and transmit error" be "transmit enable and transmit error" ?

Also, Figure 127-2 includes another signal, tx_even, generated from this process. It is not mentioned here, nor in the next paragraph. Should it be?

SuggestedRemedy

Edit the text to clarify (I do not know whether tx_even should be listed here)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to the following sentence on page 67, line 1:

The PCS Transmit process continuously generates code-groups based upon the tpd<7:0>, tp_en, tx_even, and tp_er signals on the 2.5GPII, sending them immediately to the PMA Service Interface via the PMA_UNITDATA.request primitive.

Cl **0** *SC* **0** *P* **73** *L* **3** # i-63

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The term "ordered_set" appears in many places but is not defined anywhere. "ordered set" (without the underscore) seems to be used interchangeably.

The based document (e.g. clause 36) uses "ordered set" consistently.

SuggestedRemedy

Change "ordered_set" to "ordered set" across the draft.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.1** *P* **85** *L* **34** # i-64

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

It seems that some conditions are missing in the state transition arrows out of states TX_2.5GPII_4 through TX_2.5GPII_6.

Should the condition be "cg_timer_done"?

SuggestedRemedy

Add conditions as required.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.3** *P* **212** *L* **30** # i-65

Mcclellan, Brett Marvell Semiconducto

Comment Type **T** *Comment Status* **D**

Pre-cursor ratio has been changed from 1.25+/0.05 to 0.65+/- 0.65, obviously +/- 0.65 is not correct.

SuggestedRemedy

change +/-0.65 to +/-0.05

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **128** *SC* **128.1** *P* **103** *L* **28** # i-66

RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

This subclause is titled "Overview", but more than half of its text discussed technical details of EEE, which is an optional feature.

In an overview clause, a feature should be described briefly. The details would better be placed in a separate subclause. There is a dedicated subclause for EEE in 128.6.10.

SuggestedRemedy

In the last paragraph of 128.1, keep the first sentence
"A 2.5GBASE-KX PHY with the optional Energy-Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization."

Move the rest of the paragraph to 128.6.10, with editorial license to rephrase if necessary.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.2** *P* **103** *L* **45** # i-67

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"The PMD Service Interface supports the exchange of encoded and scrambled 8B/10B blocks between the PMA and PMD entities"

Scrambling is not specified or mentioned anywhere else in 2.5GBSE-X. Unlike BASE-R, 8B/10B encoding does not include scrambling.

Moreover, the PMD service interface is specified in terms of bits, not 8B/10B blocks.

The sentence is wrong and should be corrected.

SuggestedRemedy

Change FROM
"The PMD Service Interface supports the exchange of encoded and scrambled 8B/10B blocks between the PMA and PMD entities"
TO
"The PMD Service Interface supports the exchange of bit streams representing 2.5GBASE-X 8B/10B encoded data between the PMA and PMD entities" .

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.2.2** *P* **104** *L* **32** # i-68

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

"This primitive defines the transfer of data (in the form of serialized data) ..."

The parenthesized words don't add any value. the wording in 128.2.1 is better, can similar words can be used here.

SuggestedRemedy

Replace the contents of this subclause with the following:

"This primitive defines the transfer of a serial data stream from the PMD to the PMA".

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.6.5** *P* **108** *L* **31** # i-69

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

The words "with a single variable" were used in clause 71 since transmitters of four lanes should be disabled.

Here, there is only one transmitter, so these words are unnecessary.

In most of the other single-lane clauses this wording is not used (see 72.6.5, 89.5.6, 110.7.5). 70.6.5 seems to be the only exception.

Also, the list following this paragraph is not connected yo it logically

SuggestedRemedy

Change the second sentence in the first paragraph FROM
"When implemented, it allows the transmitter to be disabled with a single variable"
TO
"When this function is supported, it shall meet the following requirements".

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.6.6** *P* **108** *L* **49** # i-70

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"A device must be explicitly placed in loopback mode because loopback mode is not the normal mode of operation of a device"

Per the style manual (10.2.2) "must is used only to describe unavoidable situations". Loopback is not unavoidable, so it is inappropriate here.

Recent PMA/PMD clauses (72 and later) do not state anything about explicit loopback setting, so this statement is not necessary here.

SuggestedRemedy

Delete the quoted sentence.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.6.10** *P* **109** *L* **25** # i-71

RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

45.2.7.13 does not describe EEE capabilities and parameter advertisement for this clause. It only refers to 73A.4 for devices that use clause 73. So an unsophisticated reader may not find where the advertisement bits are controlled.

The reference here should be to 45.2.7.14aa (which defines the relevant register for 2.5GBASE-KX), as done in 130.6.10.

Also, 73A.4 refers back to 45.2.7.13, which lists registers for all existing PMDs that use clause 73, but not for 2.5GBASE-KX nor for 5GBASE-KR...

Either 73A.4 should be amended to also refer to 45.2.7.14aa, or 45.2.7.13 should mention that some PMDs use the register defined in 45.2.7.14aa instead.

Note that 45.2.7.13 and 73A.4 are not amended in this draft.

SuggestedRemedy

Change the reference to 45.2.7.14aa.

Add a reference to 45.2.7.14aa in either 73A.4 or 45.2.7.13.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the following changes to reference the bits in the new register, 7.62:

Bits 10:0 of register 7.60 map to bits U10 through U0 respectively of the Unformatted Next Page following a EEE technology message code as defined in 28C.12.
Bits 15:0 of register 7.60 map to bits U15 through U0 respectively of the unformatted code field of Message Next Page with EEE technology message code as defined in 73A.4.
Bits 3:1 of register 7.60 also map to bits U24 through U22 respectively of the 10GBASE-T and 1000BASE-T technology message code as defined in 28C.11.

Devices using Clause 28 auto-negotiation may ignore bits defined for Clause 73 auto-negotiation, and devices using Clause 73 autonegotiation may ignore bits defined for Clause 28 auto-negotiation. Some devices using Clause 73 autonegotiation are identified by bits in register 7.62.

Cl **128** *SC* **128.6.10** *P* **109** *L* **23** # i-72

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

"The PMD LPI function responds to the transitions between Active, Sleep, Quiet, Refresh, and Wake states (...)"

These are PCS states, not PMD states. They are defined in 127.2.6.2.7 and 127.2.6.2.4, with different names. The PMD does not respond to these transitions - it responds to requests based on these transitions.

The second paragraph says "The transmitter sends /LI/ ordered sets during the sleep and refresh states, disables the transmitter during quiet, and forwards /I/ during the wake phase"

This is a PMD clause. The PMD does not have these states; it only controls the transmitter setting based on the service interface primitives. It is not aware of /I/ or /LI/ and does not sent them. It is the PCS's function. This sentence mixes sublayers and is inappropriate in a PMD clause.

This subclause seems to be based on 72.6.11. Note that all PMD clauses later than clause 72 (except clause 94) do not include a "PMD LPI function" subclause, so perhaps it is not required.

SuggestedRemedy

Change the first sentence in the first paragraph to
"The PMD LPI function responds to PMD_TXQUIET and PMD_RXQUIET requests generated by the LPI transmit state diagram (See 127.2.6.2.7) and the LPI receive state diagram (See 127.2.6.2.4).

Delete the second paragraph.

Consider deleting the whole subclause.

Apply the same change in 130.6.10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence in the first paragraph to:

The PMD LPI function responds to PMD_TXQUIET and PMD_RXQUIET requests generated by the LPI transmit state diagram (See 127.2.6.2.7) and the LPI receive state diagram (See 127.2.6.2.4).
Delete the second paragraph.

Apply the same change in 130.6.10.

Cl **128** *SC* **128.7.1.4** *P* **111** *L* **50** # i-73

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

The test pattern defined in 52.9.1.2 is for 10GBASE-R. This PMD uses 8B/10B encoding and devices don't need to be able to generate or tolerate square waves with runs longer than 5 UI, so this pattern is is inappropriate here.

The pattern used for this encoding (e.g. in 71.7.1.4) is defined in 48A.2.

SuggestedRemedy

Change the reference to 48A.2, and delete "with a run of at least eight consecutive ones followed by at least eight consecutive zeros (i.e., 1111111100000000...)"

Change PICS item TC4 accordingly to use run length of 5.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.1.4** *P* **112** *L* **19** # i-74

RAN, ADEE Intel Corporation

Comment Type **GR** *Comment Status* **A**

A note is by definition informative, so it can't include a "shall" statement.

(The formatting of this statement uses mixed font sizes. Should it be part of the note at all?)

SuggestedRemedy

Change "shall be as specified" to "is specified".

Decide whether this is part of the note or a separate paragraph; use appropriate format consistently.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make 2nd sentence below Note 2 a separate paragraph.

[Editor's note added after comment resolution completed.

The comment response was corrected from ACCEPT to ACCEPT IN PRINCIPLE as there is text is provided in the response.]

Cl **0** *SC* **0** *P* **114** *L* **29** # i-75

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

Annex 36A defines test patterns for 1000BASE-X PMDs, which use a different signaling frequency. They are also specified in bit times instead of UI, which is incorrect.

Also, the interference tolerance test pattern has to be compatible with the PCS/XGMII defined in in clause 127. The one in 36A.4 seems to assume GMII.

The test patterns for the signaling frequency and PCS used in this PHY are defined in Annex 48A.

SuggestedRemedy

Change 36A.1 to 48A.1, twice in 128.7.1.7. Also fix the wrong reference in PICS item TC17.

Change 36A.2 to 48A.2 in 128.7.1.8.

Change 36A.4 to 48A.4 in 128.7.2.1.

Change similarly in other places if I missed some.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.10.3** *P* **119** *L* **25** # i-76

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

Signal detect is mandatory for EEE (per 128.6.4). Its status should be LPI:M.

SuggestedRemedy

Change status of item SD to LPI:M and Support to "Yes" / "N/A".

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **66** *L* **30** # i-77

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

Shouldn't the signal detect (sent from the PMD to the PMA and PCS, used in auto-negotiation) and LPI signals for TX/RX LPI mode appear in this diagram?

SuggestedRemedy

Add the signals as appropriate. possibly in a separate diagram form LPI (see for example figures 105-2 and 105-3 in 802.3by).

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2** *P* **67** *L* **21** # i-78

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

The PCS used in a PHY that uses auto-negotiation has to support Auto-negotiation by additional primitive AN_LINK.indication(link_status) to inform the AN of the PCS status (see 73.9.1).

See for example 48.2.7, 49.2.16, 107.4.

SuggestedRemedy

Add a new subclause to clause 127 with contents based on one of the subclauses listed above.

The appropriate place seems to be after 127.2.2 "Functions within the PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Just above the subclause header, "127.2.3 Use of code-groups", insert new subclause shown below: (subclauses below this one will be renumbered)

127.2.2 PCS used with 2.5GBASE-KX PMD

The following requirements apply to a PCS used with a 2.5GBASE-KX PMD. Support for the Auto-Negotiation process defined in Clause 73 is mandatory. The PCS shall support the primitive AN_LINK.indication(link_status) (see 73.9). The parameter link_status shall take the value FAIL when code_sync_status=FAIL and the value OK when code_sync_status =OK. The primitive shall be generated when the value of link_status changes.

Cl **128** *SC* **128.10.4.3** *P* **122** *L* **4** # i-79
RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"5 sec" in TC13 is wrong, should be 5 microseconds. according to the reference subclause.

SuggestedRemedy

Change "sec" to "\mu sec" (Greek letter mu)

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.10.4.3** *P* **122** *L* **5** # i-80
RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

Common mode voltage has to be within this range, not equal to the boundaries

SuggestedRemedy

Change "=" to "within"

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.10.4.3** *P* **122** *L* **16** # i-81
RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"Jitter test frame per 52.9.1.1" is not mentioned in the referenced subclause.

SuggestedRemedy

Fix to whatever this should be, or delete item

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the 'Feature' column to read:
'Jitter test pattern' (singular).

Change the 'Value/Comment' column to read:

As defined in 36A.2.

Cl **128** *SC* **128.10.4.3** *P* **122** *L* **19** # i-82
RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"11111111 00000000" is not alternating polarity.

The pattern is specified in the referenced subclause. If more detailed definition is required it should be placed there, not in the PICS.

SuggestedRemedy

Delete this pattern from the PICS item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Value/Comment column to contain:

See pattern definition in 128.7.1.8.

Cl **128** *SC* **128.10.4.3** *P* **122** *L* **23** # i-83
RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

Item TC22 is in the transmitter PICS but refers to 128.7.2 which is a receiver specification.

There is no "shall" in the referenced subclause and no "transmitter output waveform" specification in this clause.

SuggestedRemedy

Delete item TC22.

Response *Response Status* **C**

ACCEPT.

Cl **128** *SC* **128.7.2.1** *P* **115** *L* **37** # i-84

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

Is there a reason that the parameters specified here are all different from those in Table 71-7 (10GBASE-KX4)? I was assuming this should be a single-lane derivative of 10GBASE-KX4.

For example the additive noise here is 10.2 mV RMS while in table 71-7 it is 8.1 mV RMS.

Are the PMD electrical requirements of this clause required to be better? is the crosstalk supposed to be stronger?

SuggestedRemedy

Change to the values in Table 71-7. If this is intentional, consider explaining in a NOTE why the values are different.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change value to 8.1.

Cl **128** *SC* **128.10.4.4** *P* **123** *L* **10** # i-85

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

The reference subclause does not exist. Clause 59 is for a totally different PMD (optical, 1G), and seems irrelevant.

The pattern for this test should be the one in 46A.4 (per another comment).

SuggestedRemedy

Use the right reference.

Response *Response Status* **C**

ACCEPT.

Cl **128A** *SC* **128A.3.1.7** *P* **175** *L* **12** # i-86

Healey, Adam Broadcom Ltd.

Comment Type **TR** *Comment Status* **A**

Item b) states that the reference equalizer from 93A.1.4.3 is applied using the values from Table 128A-2 [for the host only]. Table 128A-2 specifies a range of values for gDC but no criteria for choosing a specific value for gDC is given. Also, 128A.3.1 and its subclauses define "2.5GSEI host output characteristics" so the phrase "for the host only" seems superfluous.

SuggestedRemedy

Define the method for selecting the gDC value from the specified range (perhaps the value of gDC that maximizes the SNDR was intended)? This criteria also needs to be provided for 130A.3.6 and 130A.5.3. In addition, remove the phrase "for the host only" from item b) of 128A.3.1.7.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Specify, with editorial license, that any gDC value in the set defined by Table 128A-2 may be used to satisfy the SNDR requirement. Make similar changes in 130A.3.6 and 130A.5.3. In addition, remove the phrase "for the host only" from item b) of 128A.3.1.7.

Cl **129** *SC* **129.1.2** *P* **125** *L* **23** # i-87

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

In 45.2.3.13.4 it is stated that hi_ber indicates a BER>=1e-4. This meaning was maintained in several PCS definitions (e.g. clauses 49, 82, 107) by choosing the timers and counter thresholds appropriately.

This PCS has half the data rate of 10GBASE-R, so the exception of hi_ber asserted when reaching 32 in the same time period effectively enables 4 times higher BER before hi_ber is asserted, compared to 10GBASE-R.

In 129.2.1 it is stated that the maximum is 16, but the period is 250 microseconds, which contradicts the statement here (and seems to be more correct).

The BER PICS item is still in contradiction.

Note that in 107.2 (PCS for 25GBASE-R, which also changes the hi_ber function) the definitions of 125us_timer, ber_cnt, and hi_ber are modified together.

SuggestedRemedy

Change this subclause to align it with the definitions in 129.2.1, that is, a count up to 16 in a period of 250 microseconds.

Change the BER PICS item similarly.

Consider defining all related variables that may need to change, as in 107.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change this subclause to align it with the definitions in 129.2.1, that is, a count up to 16 in a period of 250 microseconds.<done>

Change the BER PICS item similarly.<129.7.3>

Cl **129** *SC* **129.1.3** *P* **126** *L* **15** # i-88

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

This is the PCS/PMA subclause, so these sublayers should be shaded in the diagram.

See for example Figure 82-1.

SuggestedRemedy

per comment.

Response *Response Status* **C**

ACCEPT.

Cl **129** *SC* **129.2** *P* **127** *L* **32** # i-89

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

The PCS used in a PHY that uses auto-negotiation has to support Auto-negotiation by additional primitive AN_LINK.indication(link_status) to inform the AN of the PCS status (see 73.9.1).

See for example 48.2.7, 49.2.16, 107.4.

Strangely, there is a PICS table for this requirement, although it is not stated in the clause body.

SuggestedRemedy

Add a new subclause to clause 129 with contents based on one of the subclauses listed above.

The appropriate place seems to be at the end of 129.2.

Use the new clause as reference for the PICS items in 129.7.6.5.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

At the end of 129.2, add a new subclause that says:

129.new PCS used with 5GBASE-KR PMD

The following requirements apply to a PCS used with a 5GBASE-KR PMD. Support for the Auto-Negotiation process defined in Clause 73 is mandatory. The PCS shall support the primitive AN_LINK.indication(link_status) (see 73.9). The parameter link_status shall take the value FAIL when PCS_status=false and the value OK when PCS_status=true. The primitive shall be generated when the value of link_status changes.

Update PICs 129.7.6.4, row AN2, to reflect this change in the Value/Comment column.

Cl **129** *SC* **129.7.3** *P* **133** *L* **16** # i-90

RAN, ADEE Intel Corporation

Comment Type **GR** *Comment Status* **A**

Item JTM has status "PMA:M" but PMA is not a defined option.

It is unclear what "supports test pattern mode" means when its reference is the whole clause 49.

Many other PICS items are conditional on JTM, so they all become ill-defined.

Also, 129.2.1 includes the statement: "The 5GBASE-R PCS shall have all the functionality of the 10GBASE-R PCS specified in Clause 49." This statement does not have a PICS item. If it did have one, it could remove the need for many items that refer to clause 49 or its subclauses, and have no explicit equivalents in this clause.

SuggestedRemedy

Work on the PICS to make it clear and consistent. The major options and conditions must be well defined.

Add a mandatory PICS item for the quoted statement that would cover all the requirements included in clause 49.

PICS must always have a reference. If the reference is in clause 49 then consider removing the PICS item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

At 129.7.3, delete JTM row.

Cl **129** *SC* **129.7.5** *P* **134** *L* **13** # i-91

RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

Item JT3 refers to subclause 129.2.1, but the feature described in it (Transmit and receive test pattern modes can operate simultaneously) is not defined in this subclause, nor anywhere else in this clause.

Likewise for item SM5.

SuggestedRemedy

Delete these items?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

At 129.7.3, delete the JT3 and SM5 rows.

Cl **130** *SC* **130.1** *P* **137** *L* **28** # i-92

RAN, ADEE Intel Corporation

Comment Type **G** *Comment Status* **A**

This subclause is titled "Overview", but more than half of its text discussed technical details of EEE, which is an optional feature.

In an overview clause, a feature should be described briefly. The details would better be placed in a separate subclause. There is a dedicated subclause for EEE in 130.6.10.

SuggestedRemedy

In the last paragraph of 130.1, keep the first sentence
"A 5GBASE-KR PHY with the optional Energy-Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization."

Move the rest of the paragraph to 130.6.10, with editorial license to rephrase if necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In the last paragraph of 130.1, keep the first sentence only. Move the remain text, as shown below.

Add the following text as a second paragraph at 130.6.10:

The PMD LPI function responds to the transitions between Active, Sleep, Quiet, Refresh, and Wake states via the PMD_TX_MODE and PMD_RX_MODE requests. Implementation of the function is optional. EEE
capabilities and parameters will be advertised during the Backplane Auto-negotiation, as described in 45.2.7.14aa. The transmitter on the local device will inform the link partner's receiver when to sleep, refresh and wake. The local receiver transitions are controlled by the link partner's transmitter and can change independent of the local transmitter states and transitions.

Cl **130** *SC* **130.6.2** *P* **141** *L* **35** # i-93

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

Per the style manual, "The use of the word will is deprecated and shall not be used when stating mandatory requirements; will is only used in statements of fact".

This is a mandatory requirement.

SuggestedRemedy

Change "will" to "shall".

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.6.4** *P* **141** *L* **48** # i-94

RAN, ADEE — Intel Corporation

Comment Type **ER** *Comment Status* **A**

"2.5G-KX and 5G-KR" is undefined nomenclature.

This clause is only about 5GBASE-R.

SuggestedRemedy

Change "by 2.5G-KX and 5G-KR" to "by 5GBASE-R PHYs".

Alternatively, delete these words.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "by 2.5G-KX and 5G-KR" to "by 5GBASE-R PHYs".

Cl **127** *SC* **127.2.6.2.1** *P* **85** *L* **33** # i-95

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

The transition from the state TX_2.5GPII_4 to TX_2.5GPII_5, from TX_2.5GPII_5 to TX_2.5GPII_6, and from TX_2.5GPII_6 to TX_2.5GPII_7 in Figure 127-4 'PCS Word Encode and Word-to-Octets state diagram' should all be qualified by cg_timer_done.

SuggestedRemedy

Add cg_timer_done to the transition from TX_2.5GPII_4 to TX_2.5GPII_5, from TX_2.5GPII_5 to TX_2.5GPII_6, and from TX_2.5GPII_6 to TX_2.5GPII_7.

Note: I've submitted another comment related to other issues that could potentially replace this state diagram.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the "cg_timer_done" transition condition on the TX_2.5GPII_4/5/6 transition arrows, as shown on TX_2.5GPII_0/1/2 transition arrows.

Cl **FM** *SC* **FM** *P* **1** *L* **3** # i-96

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Now that the likely approval order has become clearer with IEEE P802.3cb approval expected after IEEE P802.3bs and IEEE P802.3cc respectively, and the recent approval of IEEE Std 802.3-2015(TM)/Cor1-2017, text that references the approval order needs updated.

SuggestedRemedy

Suggest that:

[1] On page 1, line 3 '... IEEE Std 802.3bv(TM)-2017, IEEE Std 802.3bt(TM)-20xx, IEEE Std 802.3bs(TM)-20xx, IEEE Std 802.3-2015/Cor 1-20xx (list to be updated in publication preparation.))' be changed to read '... IEEE Std 802.3bv(TM)-2017, IEEE Std 802.3-2015(TM)/Cor1-2017, IEEE Std 802.3bs(TM)-20xx and IEEE Std 802.3cc(TM)-20xx).

[2] On page 1, line 31 '... IEEE Std 802.3bv-2017, IEEE Std 802.3bt-20xx, IEEE Std 802.3bs-20xx, and IEEE Std 802.3-2015/Cor 1-20xx.' be changed to read '... IEEE Std 802.3bv-2017, IEEE Std 802.3-2015/Cor1-2017, IEEE Std 802.3bs-20xx and IEEE Std 802.3cc-20xx.'.

[3] On page 13, lines 27 through 33, delete text related to IEEE P802.3bt-20xx and insert the following:

IEEE Std 802.3(TM)-2015/Cor 1-2017

This corrigendum clarifies which lane of the media dependent interface (MDI) of a multi-lane Physical Layer entity (PHY) is used as the timestamping reference point.

[4] On page 13, lines 42 through 46, delete text related to IEEE Std 802.3-2015/Cor 1-20xx and insert the following:

IEEE Std 802.3cc(TM)-201x

This amendment includes changes to IEEE Std 802.3-2015 and adds Clause 114. This amendment adds 25 Gb/s Physical Layer specifications and management parameters for operation over single-mode fiber.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace redundant information on lines 2 to 5 with the following phrase (all on one line):

(Amendment of IEEE Std 802.3™-2015)

Cl **FM** *SC* **FM** *P* **8** *L* **14** # i-97

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

While the text on line 3 reads 'The following individuals were officers and members of the IEEE 802.3 working group at the beginning of
the IEEE P802.3xx working group ballot' two officers weren't members at that time.

SuggestedRemedy

Add a footnote to Yong Kim and Jim Hatfield that reads 'Not a member of the IEEE 802.3 working group at the beginning of the working group ballot.'.

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **8** *L* **4** # i-98

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Need to add project designation.

SuggestedRemedy

Suggest that the text '... of the IEEE P802.3xx working ...' be changed to read '... of the IEEE P802.3cb working ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.2** *P* **69** *L* **8** # i-99

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Typo

SuggestedRemedy

Suggest that 'Data Bor ...' in the Lane 1 column should read 'Data B or ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.2** *P* **69** *L* **25** # i-100

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

The mnemonics 'Prev Data S2' and 'Prev Data S3' used in the antepenultimate entry of Table 127-3 'Word Encode mapping' are not defined anywhere. They seem to refer to the values of S2 and S3 as calculated by equation 127-1 during the previous mapping.

SuggestedRemedy

Suggest that:

[1] 'Prev Data ...' be changed to read 'Previous Data ...'.
[2] Add a footnote to the table, which is normative (see IEEE-SA Style Guide subclause 13.4) that reads 'Previous Data S2 and previous Data S3 are the values of S2 and S3 respectively as calculated by equation 127-1 during the previous mapping.'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.1.7** *P* **84** *L* **4** # i-101

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

The definition of cg_timer state that 'If XGMII is implemented, cg_timer shall expire synchronously with the rising edge of TX_CLK (see tolerance required for TX_CLK in 46.3.1.1).'. Suggest that it should be made clear that in this case the timer expires synchronously with the rising edge of TX_CLK as well as seven other times between the rising edges, after a duration of the TX_CLK cycle time divided by 8.

SuggestedRemedy

Suggest that the second sentence of the cg_timer definition be changed to read 'If the XGMII is implemented, cg_timer shall expire synchronously with the rising edge of TX_CLK as well as every one-eighth of the TX_CLK cycle time (see tolerance required for TX_CLK in 46.3.1.1).'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.2** *P* **87** *L* **2** # i-102

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

On the transition from the state TX_TEST_XMIT to XMIT_DATA and the transition from XMIT_DATA to ALIGN_ERR_START the condition uses the variables 'tx_en' and 'tx_er', the transition from the state END_OF_PACKET_EXT to EXTEND_BY_1 uses the variable 'tx_er'. These variables are not defined and are not used anywhere else, suggest they should be 'tp_en' and 'tp_er'.

SuggestedRemedy

Suggest that:

[1] On the transition from the state TX_TEST_XMIT to XMIT_DATA the condition should read 'tp_en=0 * tp_er=0'.
[2] On the transition from the state XMIT_DATA to ALIGN_ERR_START the condition should read 'tp_en=1 * tp_er=1'.
[3] On the transition from the state END_OF_PACKET_EXT to EXTEND_BY_1 the condition should read ' tx_er=1 * TX_OSET.indicate'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.2** *P* **87** *L* **3** # i-103

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

In the equation in the transition from XMIT_DATA back to XMIT_DATA the condition 'tp_en_0' should read 'tp_en=0'.

SuggestedRemedy

In the equation in the transition from XMIT_DATA back to XMIT_DATA the condition 'tp_en_0' should read 'tp_en=0'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.2** *P* **86** *L* **16** # i-104

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Typo.

SuggestedRemedy

In the SPECIAL_GO state rather than use a '<' and '=' character to form a '<=' the assignment operator symbol, character code ALT-0220 Symbol font (keystrokes Ctrl-q \ in Framemaker) should be used.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.6** *P* **93** *L* **20** # i-106

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

There are two table 127-4s, one on page 71 and one on page 93, similarly there are two table 127-5s, one on page 73 and one on page 93, looks like the table number gets reset to table 127-4 again after the first table 127-5.

SuggestedRemedy

Renumber the second instances of table 127-4 and 127-5 as 127-6 and 127-7.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.2** *P* **68** *L* **48** # i-107

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Suggest that 'Lane 0' through 'Lane 3' be clearly defined in this table and Table 127-4.

SuggestedRemedy

Suggest that:

[1] The text (page 68, line 48) '... maps the four XGMII lanes onto four 2.5GPII symbols ...' be changed to read '.. maps the four XGMII lanes (see Table 46-2) onto four 2.5GPII symbols ...'.
[2] The text {page 70, line 50) '... process maps the four 2.5GPII symbols onto the four XGMII lanes ...' be changed to read '... process maps the four 2.5GPII symbols onto the four XGMII (see Table 46-2) lanes ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.2** *P* **69** *L* **5** # i-108

Law, David
Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

I don't see 2.5GPII<0>, 2.5GPII<1>, 2.5GPII<2> or 2.5GPII<3> used in the header of Table 127-3 'Word Encode mapping' and Table 127-4 'Word Decode mapping' defined anywhere. Instead according to Figure 127-2 'Functional block diagram' the output of the Word Encode function is we_tpd<31:0>, we_tp_en<3:0> and we_tp_er<3:0> and the input to the Word decode function is wd_rpd<31:0>, wd_rp_dv<3:0> and wd_rp_er<3:0>.

SuggestedRemedy

Suggest that:

[1] In Table 127-3:

[a] The heading

2.5GPII <0>

be changed to read

wd_tpd<7:0>
we_tp_en<0>
we_tp_er<0>

[b] The heading

2.5GPII <1>

be changed to read

wd_tpd<15:8>
we_tp_en<1>
we_tp_er<1>

[d] The heading

2.5GPII <2>

be changed to read

wd_tpd<23:16>
we_tp_en<2>
we_tp_er<2>

[e] The heading

2.5GPII <3>

be changed to read

wd_tpd<31:24>
we_tp_en<3>
we_tp_er<3>

[2] In Table 127-4:

[a] The heading

2.5GPII <0>

be changed to read

wd_rpd<7:0>
we_rp_en<0>
we_rp_er<0>

[b] The heading

2.5GPII <1>

be changed to read

wd_rpd<15:8>
we_rp_en<1>
we_rp_er<1>

[d] The heading

2.5GPII <2>

be changed to read

wd_rpd<23:16>
we_rp_en<2>
we_rp_er<2>

[e] The heading

2.5GPII <3>

be changed to read

wd_rpd<31:24>

we_rp_en<3>
we_rp_er<3>

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.1** *P* **67** *L* **40** # i-109

Law, David Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

The first paragraph of subclause 127.2.4.1 that reads 'A 2.5GPII symbol is defined to be a set of tp_en, tp_er, tpd<7:0> variables on the transmit path, and rp_dv, rp_er, rpd<7:0> variables on the receive path.' is somewhat duplicative of the first sentence of the third paragraph that reads 'The 2.5GPII consists of the following variables: tp_en, tp_er, tpd<7:0>, rp_dv, rp_er, rpd<7:0> and its encoding is similar but not identical to the GMII in Clause 35.'.

SuggestedRemedy

Suggest that:

[1] The first paragraph is deleted so that the subclause starts with the high level description in the second paragraph that reads 'The 2.5 Gb/s PCS Internal Interface (2.5GPII) is a ...'.

[2] The first sentence of the third paragraph be changed to read 'A 2.5GPII symbol is defined to be a set of tp_en, tp_er, tpd<7:0> variables on the transmit path, and rp_dv, rp_er, rpd<7:0> variables on the receive path.'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **66** *L* **49** # i-110

Law, David Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Spurious full stop.

SuggestedRemedy

The text '... error (we_tp_er<3:0>). based ...' should read '... error (we_tp_er<3:0>) based ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **66** *L* **53** # i-111

Law, David Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Suggest that '... associated transmit and...' should read '... associated transmit enable and...', that the associated variables should be provided in round brackets as is done in the preceding paragraph, and the spurious space deleted.

SuggestedRemedy

Suggest that '... one 2.5GPII symbol and its associated transmit and transmit error at a ...' be changed to read '... one 2.5GPII symbol (tpd<7:0>) and its associated transmit enable (tp_en) and transmit error (tp_er) at a ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **67** *L* **17** # i-112

Law, David Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Subclause 127.2.2 'Functions within the PCS' states that 'The Word Decode process continuously accepts the four 2.5GPII symbols from the Word Alignment process ...' however I can't find any mention of the Word Alignment process elsewhere. Based on Figure 127-2 'Functional block diagram' doesn't the Word Decode process accept 2.5GPII symbols from the octets-to-word process.

SuggestedRemedy

Suggest that the text '... accepts the four 2.5GPII symbols from the Word Alignment process ...' should be changed to read '... accepts the four 2.5GPII symbols from the Octets-to-Word process ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.1** *P* **85** *L* **2** # i-113

Law, David Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

The WENCODE function is now called in the TX_XGMII_LO and TX_XGMII_HI states.

SuggestedRemedy

Suggest that the text '... in the TX_XGMII state.' be changed to read '... in the TX_XGMII_LO and TX_XGMII_HI states.'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.1** *P* **68** *L* **1** # i-114

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

According to subclause 127.2.2 'Functions within the PCS' the Word Encode process '... generates four 2.5GPII symbols (we_tpd<31:0>) and associated four bits of transmit enable (we_tp_en<3:0>) and four bits of transmit error (we_tp_er<3:0>) ...' which matches the output of the Word Encode process shown in Figure 127-2 'Functional block diagram'.

SuggestedRemedy

Suggest that:

[1] In the last paragraph of subclause 127.2.4.1 the text '... processes serializes/de-serializes four 2.5GPII symbols to/from ...' should be changed to read '... processes serializes/de-serializes four 2.5GPII symbols, and their associated enable and error bits, to/from ...'.

[2] In the first paragraph of subclause 127.2.4.2 'Word Encode' the text '... onto four 2.5GPII symbols as ...' should be changed to read '... onto four 2.5GPII symbols, and their associated transmit enable and transmit error bits, as ...'.

[3] In the first paragraph of subclause 127.2.4.5 'Word Decode' the text '... maps the four 2.5GPII symbols onto the four XGMII lanes ...' should be changed to read '... maps the four 2.5GPII symbols, and their associated receive data valid and receive error bits, onto the four XGMII lanes ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127A** *SC* **127A** *P* **165** *L* **37** # i-115

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Annex 127A states that 'Since the 2.5GBASE-X PCS is attached to a MAC that can send out sequence ordered_set (/Q/) ...'. Subclause 46.3.4 howeevr states that 'Link fault signaling' states that 'Link fault signaling operates between the remote RS and the local RS'.

SuggestedRemedy

Suggest that '... attached to a MAC that can send ...' be changed to read '... attached to a RS that can send ...'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.2** *P* **67** *L* **7** # i-116

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

IEEE Std 802.3-2015 subclause 1.2.2.1 'Classification of service primitives' states 'Primitives are of two generic types' listing 'request' and 'indication' and stating 'The indication primitive is passed from layer N-1 to layer N to indicate an internal layer N-1 event that is significant to layer N.' in respect to the letter.

SuggestedRemedy

Suggest that:

[1] All instances of 'SYNC_UNITDATA.indicate' be changed to read 'SYNC_UNITDATA.indication'.
[2] All instances of 'TX_OSET.indicate' be changed to read 'TX_OSET.indication'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.1.4** *P* **81** *L* **19** # i-117

Law, David — Hewlett Packard Enter

Comment Type **E** *Comment Status* **A**

Typo.

SuggestedRemedy

Suggest that 'DECODE ([/x]/)' should read 'DECODE([/x]/)'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.6** *P* **94** *L* **44** # i-118

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

The transition from the RX_2.5GPII_3 state to the RX_XGMII and from the RX_XGMII state to the RX_2.5GPII_0 state are both UCT. Due to this the SUDI that causes entry in to the RX_2.5GPII_3 state will result in the same rp_dv, rp_er, rpd<7:0> data being written twice by SINSERT function as there is no delay between the RX_2.5GPII_3 and RX_2.5GPII_0 states. In addition there are only three SUDIs, so only three sets of rpd<7:0>, in the loop that is generating the 32 bits to be transferred over RXD<31:0>.

SuggestedRemedy

Suggest that the transition from RX_2.5GPII_3 to RX_XGMII be changed from UCT to SUDI.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.5** *P* **71** *L* **50** # i-119

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

The note on Table 127-4 states that 'Data that corresponds to Start is only placed on 2.5GPII<0>. [sic] when XGMII is implemented.' yet according to the RX_XGMII state in Figure 127-9 'Octets-to-Word and Decode state diagram' the WALIGN function is always called by the WDECODE function to generate RXC<3:0> and RXD<31:0>. Since subclause 127.2.6.1.4 states that the WALIGN function '... performs the alignment according to 127.2.4.4.' it seems that start will always be aligned to 2.5GPII<0>.

SuggestedRemedy

Suggest that the note be deleted.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.1.4** *P* **82** *L* **14** # i-120

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

Subclause 127.2.4.4 'Octets-to-Word' states that 'wd_rpd<7:0> is the earliest to arrive and wd_rpd<31:24> is the last.'. A similar definition of the octet order is not provided in the definition of the WALIGN function in subclause 127.2.6.1.4. Since this is the function that defines the Octets-to-Word process suggest this definition of the octet order should be added.

SuggestedRemedy

Add the text 'wd_rpd<7:0> is the earliest to arrive and wd_rpd<31:24> is the latest.' be added as a new third sentence of the third paragraph.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add text below as a new 3rd sentence of the first paragraph, before the words "The SINSERT(x)…":

wd_rpd<7:0> is the earliest to arrive and wd_rpd<31:24> is the latest.

Cl **127** *SC* **127.2.4.5** *P* **71** *L* **22** # i-121

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

In the third line of Table 127-4 'Word Decode mapping' the wdecode_state(n) column reads !IDLE. According to subclause 21.5.4 'Operators' of IEEE Std 802.3-2015 ! is a Boolean NOT. Since I believe the intent is wdecode_state(n) not equal to IDLE, suggest that the ! symbol be change to the not equal symbol (see line 4 of Table 21-1 'State diagram operators (continued) of IEEE Std 802.3-2015').

SuggestedRemedy

Suggest that all instances of the ! in the wdecode_state(n) column be changed to the not equal symbol.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.5** *P* **70** *L* **53** # i-122

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Subclause 127.2.4.5 'Word Decode' states that 'The mapping is dependent on the current state of the wdecode_state and next_seq_s2_s3 variables as shown in columns 5 and 6.'. Table 127-4 'Word Decode mapping' however uses the next_seq_s2s3 variable (no underscore between the S2 and s3) and there is no other mention of next_seq_s2_s3 next_seq_s2s3 variables in the draft.

In the definition of the WDECODE(x, y, z) function it is stated that '... the variable z indicates whether the next four 2.5GPII variables are the final four 2.5GPII symbols of the |Q| or |Fsig| ordered-set.'. The NEXTSEQ function, that generates the variable z in the RX_XGMII state of Figure 127-9 'Octets-to-Word and Decode state diagram', however states that the function '... returns whether the next four 2.5GPII symbols presented to the Word Decode process is of the form: Sequence, Data, Sequence, Data.'.

While there doesn't appear to be any error the different descriptions in the different subclause makes it difficult to connect them as referencing the same thing.

SuggestedRemedy

Suggest that:

[1] In subclause 127.2.4.5 insert a new third sentence that reads 'The seq_s2_s3 variable indicates whether the next four 2.5GPII symbols are of the form: Sequence, Data, Sequence, Data.'.
[2] In the Table 127-4 heading change ' next_seq_s2s3' to read ' next_seq_s2_s3'.
[3] in the WDECODE(x, y, z) function change the text '... the variable z indicates whether the next four 2.5GPII variables are the final four 2.5GPII symbols of the |Q| or |Fsig| ordered-set.' to read '... the variable z indicates whether the next four 2.5GPII symbols are of the form: Sequence, Data, Sequence, Data.'.

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.5** *P* **71** *L* **6** # i-123

Law, David — Hewlett Packard Enter

Comment Type **T** *Comment Status* **A**

Subclause 127.2.4.5 'Word Decode' states 'The 24-bit Data X, Data Y, and Data Z from the sequence ordered is reconstructed from Data S0, Data S1, Data S2, Data S3 according to Equation (127-2).'. While equation 127-2 includes the equations for Data X, Data Y and Data Z, it also includes 'if (S0<7>, S1<7>, S2<7>, S3<7> = 0110) then output XGMII = Sequence, Data X, Data Y, Data Z where' and 'else XGMII = Idle, Idle, Idle, Idle' defining the XGMII output. This seems to be duplicative of Table 127-4 'Word Decode mapping' below.

SuggestedRemedy

Suggest that equation 127-2 should simply read:

Data X<7:0> = S1<1:0>, S0<5:0>
Data Y<7:0> = S2<3:0>, S1<5:2>
Data Z<7:0> = S3<5:0>, S2<5:4>

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.6.2.4** *P* **92** *L* **16** # i-124

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

The condition on the transition from the state LP_IDLE_D to LPI_K in Figure 127-8c 'PCS Receive state diagram, part c' reads:

signal_detect=OK * !rx_tq_timer_done (SUDI + SUDI([/K28.5/]))

There is no Boolean operator between rx_tq_timer_done and the parenthetical SDI related conditions, in addition (SUDI + SUDI([/K28.5/])) is equal to just SUDI so this appears to be a typo. Since the transition is to the state LPI_K, it would appear the missing operator is a Boolean AND, and the SUDI + condition should be removed.

SuggestedRemedy

Suggest that the condition on the transition from the state LP_IDLE_D to LPI_K in Figure 127-8c should be:

signal_detect = OK * !rx_tq_timer_done * SUDI([/K28.5/])

Response *Response Status* **C**

ACCEPT.

Cl **127A** *SC* **127A** *P* **165** *L* **45** # i-125

Law, David — Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

As stated in annex 127A 'It is permissible for a compliant 1000BASE-X PCS transmit process to truncate the first byte of a preamble in order to align the start of packet on the EVEN boundary.'.

In the 2.5GBASE-X receive path the WALIGN function called by the RX_XGMII state of the Figure 127-9 'Octets-to-Word and Decode state diagram' performs alignment according to subclause 127.2.4.4. Based on the rules described in that subclause the first packet received will set the Deficit Idle Count to place the first Data symbol, in this case the SPD replaced by a preamble octet by the PCS, on wd_rpd<7:0> of the 2.5GPII. This in turn will be encoded as a XGMII 'start' (RXC = 1, RXD = 0xFB) on lane 0 as required by Clause 46.

As noted above the first octet of preamble may be discarded on transmit by a 1000BASE-X PCS. This results in the transmission of, and therefore reception of, a 7 octet preamble. With the first octet of this 7 octet preamble aligned by the WALIGN function on XGMII lane 0, the SFD will be received on Lane 2 of XGMII, not Lane 3 as illustrated in IEEE Std 802.3-2015 Figure 46-8 and 46-9.

IEEE Std 802.3-2015 subclause 46.3.3.3 'Response to received invalid frame sequences' states 'Error free 10 Gb/s operation will not change the SFD alignment in lane 3' and 'A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character.'.

There appears to be no changes to this text as a result of IEEE Std 802.3bz-2016 amending the XGMII specification to support operation at 2.5 Gb/s and 5 Gb/s as well as 10 Gb/s. As a result the above text only applies to XGMII 10 Gb/s operation and IEEE 802.3 is silent in this respect for 2.5 Gb/s and 5 Gb/s XGMII operation.

That being said, there may be an assumption made that a 10 Gb/s MAC/RS/XGMII implementation may also support 2.5 Gb/s operation through quarter rate clocking. This however is not the case if the implementation took the option of not processing packets that have an SFD in a position other than lane 3 as is permitted by IEEE Std 802.3-2015 subclause 46.3.3.3. If that option is implemented all packets received from a 2.5GBASE-X would not be processed as the SFD will always be received in lane 2.

SuggestedRemedy

While strictly speaking IEEE Std 802.3-2015 subclause 46.3.3.3 only applies to a 10 Gb/s MAC/RS/XGMMI, to avoid any incorrect assumptions, suggest that:

[1] The text '...to be able to accept a seven byte preamble on the XGMII.' in the penultimate paragraph of Annex 127A be changed to read '...to be able to accept a seven byte preamble on the XGMII with the SFD positioned on lane 2.'.

[2] A note that reads 'Note: To support 2.5GBASE-X compatibility with a 1000BASE-X PCS/PMA running 2.5 times faster, a 2.5Gb/s MAC/RS implementation has to support a Start control character received on either lane 2 or lane 3.' Be added to the end of subclause 46.3.3.3.

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.7.1.4** *P* **146** *L* **14** # i-126

RAN, ADEE — Intel Corporation

Comment Type **TR** *Comment Status* **A**

Here there is a normative statement in an informative note, with detailed specification that does not appear elsewhere.

SuggestedRemedy

Change FROM
"shall be between 0 V and 1.9 V with respect to signal ground as measured at Vcom in Figure 130-2"
TO
"is defined in Table 130-4".

Add a table footnote in table 130-4 item "Common-mode voltage limits":
"Defined with respect to signal ground as measured at Vcom in Figure 130-2".

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.7.1.7** *P* **148** *L* **31** # i-127

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"with no equalization"

There is no variable that controls equalization in this PMD, so this can't be done in a standard way.

Also applies to the requirement of 130.7.1.8, jitter measurement. In this case, equalization may be required based on where the measurement is performed.

SuggestedRemedy

Add a control variable to disable equalization.

Alternatively, if equalization is fixed, remove the words "with no equalization" here and "Equalization shall be off during jitter testing" in 130.7.1.8, and change the required transition time and jitter to account for the equalization.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Use Table 45-60 reserved bit for the equalizer enable control bit.

Add a second paragraph that says:
The BASE-R PMD control register is also used by 5GBASE-KR described in Clause 130 to disable the transmitter equalizer for test purposes. 5GBASE-KR does not use the start-up protocol.

In the table 'Name' field use the following:
transmitter equalizer disable

In the table 'Description' field use the following:
1 = Disable the 5GBASE-KR transmitter equalizer
0 = normal operation

Add words in a new subclause 45.2.1.80.3 for the equalizer disable:

When bit 1.150.2 is set to one, 5GBASE-KR transmitter equalization is disabled. The default value of bit 1.150.2 is zero.

Cl **130** *SC* **130.7.1.10** *P* **149** *L* **1** # i-128

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

It seems that subclauses 130.7.1.10 and 130.7.1.11 discuss the same thing.

Unlike clauses which have configurable equalization and describe what is configured, in this clause c(0) and c(-1) are not configurable. Therefore 130.7.1.10 is only informative text about how the requirements in 130.7.1.11 can be achieved.

These subclauses can be merged for better logical structure.

SuggestedRemedy

Consider merging these subclauses.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete subclause header:
"130.7.1.11 Transmitter output waveform requirements"
to merge the two sections of text.

Cl **130** *SC* **130.7.1.11** *P* **149** *L* **23** # i-129

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

"shall be measured" is inappropriate. Measurement is not mandatory. This language is usually not used in other clauses.

Also, the measurement setup (which may strongly affect the results) is not shown in figure 130-7.

The required R_pre, on the other hand, is mandatory and this should be a normative statement.

SuggestedRemedy

Change "which shall be measured as shown in Figure 130-7" to "which are illustrated in Figure 130-7".

Change "The R_pre requirements are shown in Table 130-4" to "These measurements are used to calculate R_pre, defined in Equation (130-7). R_pre shall be within the limits specified in Table 130-4."

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.7.2.1** *P* **151** *L* **8** # i-130

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

The noise levels and jitter levels in this table exceed those defined in clause 72 (10GBASE-KR). This is contrary to the fact that the bandwidth is lower and therefore signal integrity and jitter can be better controlled.

The rationale for using this high noise level and jitter in interference tolerance test is unclear. Is there any reason to expect such high impairments in real operation?

If this high noise level is untypical for real operation it might cause false failures, e.g. due to increased jitter effect on CDRs that are optimized for realistic noise levels.

SuggestedRemedy

Change the noise and jitter levels to be the same as those in Table 72-10.

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.10.4.4** *P* **156** *L* **21** # i-131

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

TC8 description includes "5 sec", it should be microseconds.

SuggestedRemedy

Change "5 sec" to "5 /mu s" (Greek letter mu)

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.10.4.4** *P* **156** *L* **40** # i-132

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

The test pattern in the reference subclause is the one specified in 52.9.1.2, not 36A.1 (the latter is the alternating bits pattern for 8B/10B encoding).

SuggestedRemedy

Change the test pattern definition to 52.9.1.2 in TC15 and TC16.

Response *Response Status* **C**

ACCEPT.

Cl **130** *SC* **130.10.4.4** *P* **157** *L* **10** # i-133

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **A**

"11111111 00000000" is not alternating polarity.

The pattern is specified in the referenced subclause. If more detailed definition is required it should be placed there, not in the PICS.

SuggestedRemedy

Delete this pattern from the PICS item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the Value/Comment column of the TC20 row to read:
See pattern definition in 130.7.1.8.

[Editor's note added after comment resolution completed.

The comment response was corrected from ACCEPT to ACCEPT IN PRINCIPLE as there is text is provided in the response.]

Cl **69A** *SC* **69A.2** *P* **161** *L* **23** # i-134

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

Newly inserted text in a changed paragraph should be underlined.

Since this paragraph is effectively deleted and replaced by new text, it may be simpler to use a "replace" instruction instead.

SuggestedRemedy

If the instruction is "change", format the new text with underline.

Alternatively, change the instruction to "replace" and delete the original text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The instruction is a "change".

Underline the added text after the strikethrough sentence.

Cl **128A** *SC* **128A.1** *P* **167** *L* **34** # i-135

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **A**

The two parts of figure 128A-1 are labeled "Test points along transmit path" and "Test points along receive path", although in both cases the path includes both a transmitter and a receiver.

More descriptive titles would be "Test points along Drive-to-Host path" and "Test points along Host-to-Drive path" respectively.

Comment applies similarly for figure 130A-1.

SuggestedRemedy

Consider changing the titles in both annexes as suggested.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.3.1** *P* **212** *L* **30** # i-136

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **R**

Pre-cursor ratio range is unreasonably wide, allowing any ratio between 0 to 1.3. This practically means "anything goes".

Compare to Table 130-4 where the nominal value at the PMD is 1.25 +/-0.05.

The precursor ratio can degrade somewhat after passing through a channel, but can't change from larger than 1 to smaller than 1. From the 130.7.1.11 definition, a value of R_pre less than 1 requires the signal to be deliberately shaped to create a slow transition (positive value for c(-1) in figure 130-6).

Such shaping would be detrimental for receiver performance and should not be allowed. But with the current allowed range, drive receiver can't know what equalization to expect. It's like not specifying anything.

SuggestedRemedy

Change the allowed range to 1.2 +/- 0.1, allowing some channel degradation compared to the PMD specification, but preventing no-equalization or low-pass equalization.

Response *Response Status* **C**

REJECT.

No consensus within the comment resoluton Task Force to make a change.

Cl **127** *SC* **127.2.6.2.2** *P* **86** *L* **30** # i-137

Law, David Hewlett Packard Enter

Comment Type **TR** *Comment Status* **A**

*** Comment submitted with the file 93584600003-Figure_127_5_comment.pdf attached ***

There is a sequencing issue between Figure 127-5 'PCS transmit ordered set state diagram' and Figure 127-6 'PCS transmit code-group state diagram'. Figure 127-6 changes state based on cg_timer_done = TRUE, and this change of state generates TX_OSET.indicate. TX_OSET.indicate in turn causes Figure 127-5 to change state.

An example is start of packet. Figure 127-6 changes state based on tp_en and tp_er as sampled by TX_OSET.indicate. TX_OSET.indicate is generated by Figure 127-5 based on cg_timer_done = TRUE. As a result tx_o_set changes state from /I/ to /S/. On the next cg_timer_done = TRUE Figure 127-6 will change state to SPECIAL_GO and tx_code-group will be set to /K27.7/.

It however has taken two cg_timer_done = TRUE cycles for the /K27.7/ character to be transmitted, one cg_timer_done = TRUE cycle for Figure 127-6 to change tx_o_set to /S/, then a second cg_timer_done = TRUE for Figure 127-5 to output /K27.7/. This means that the first byte of preamble has been discarded, and the second byte is being substituted with /S/.

See attached document <Figure_127_5_comment.pdf> for more details.

SuggestedRemedy

See attached document <Figure_127_5_comment.pdf>.

Response *Response Status* **C**

ACCEPT.

Cl **130A** *SC* **130A.3.3** *P* **214** *L* **30** # i-138

RAN, ADEE — Intel Corporation

Comment Type **TR** *Comment Status* **A**

"The state of the transmit equalizer and hence the transmitted output waveform may be manipulated via the management interface"

Unfortunately variables for equalization in the management interface are not defined in this draft. This sentence does not appear in the parallel subclause 130.7.1.10.

It would be good if such variables be added, but if they are not, this sentence is misleading the reader.

SuggestedRemedy

Consider adding management variables in clause 130 for controlling the equalization coefficients in figure 130-6, and suitable MDIO register mapping in clause 45. This would also require a test method to verify implementations.

I would recommend using the variables and measurement method specified in 83D.3.1 (which relies on linear fitted pulse measurement, also used in the current project), and changing the definition to use only the precursor and main taps, with the same choice of coefficient values for c(-1).

I realize that this would be a deviation from this project's current method (130.7.1.11), but it is now an established solution in several PMDs and electrical interfaces.

Alternatively, if this solution is not accepted, delete the quoted sentence.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Same response as comment number i-127 which is:

Use Table 45-60 reserved bit for the equalizer enable control bit.

Add a second paragraph that says:
The BASE-R PMD control register is also used by 5GBASE-KR described in Clause 130 to disable the transmitter equalizer for test purposes. 5GBASE-KR does not use the start-up protocol.

In the table 'Name' field use the following:
transmitter equalizer disable

In the table 'Description' field use the following:
1 = Disable the 5GBASE-KR transmitter equalizer
0 = normal operation

Add words in a new subclause 45.2.1.80.3 for the equalizer disable:

When bit 1.150.2 is set to one, 5GBASE-KR transmitter equalization is disabled. The default value of bit 1.150.2 is zero.

Cl **128** *SC* **128** *P* **0** *L* **0** # i-139

Thompson, Geoffrey — Independent Consulta

Comment Type **GR** *Comment Status* **A**

I can not find any definition that places the MDI physically. Is it TP1/4 or is it a physical connector? (Same seems to apply to cl. 130)

SuggestedRemedy

Say that TP1/4 (or whatever is true) is the MDI for specification purposes for this clause.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to overview in 128.1 (page 103, line 9)
and 130.1 (page 137, line 9), at the end of the first paragraph, an additional sentence that says:

References to the MDI (Media Dependent Interface) should be considered to be TP1 for the transmitter and TP4 for the receiver, as measurement points.

Cl **45** *SC* **45.2.1.1.5** *P* **33** *L* **32** # i-140

Mcclellan, Brett

Comment Type **E** *Comment Status* **A**

Late Comment:
PMA loopback is required by Clause 127 (2.5GBASE-X)

SuggestedRemedy

change "2.5GBASE-KX" to "2.5GBASE-X"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.89.6** *P* **36** *L* **15** # i-141

Mcclellan, Brett

Comment Type **T** *Comment Status* **A**

Late Comment:
signal detect is a PMD function, not PCS. Also need to add 2.5GBASE-X PCS to second sentence.

SuggestedRemedy

change "1000BASE-X PCS" to "1000BASE-KX PMD" and "2.5GBASE-X PCS" to "2.5GBASE-KX PMD". Add editor's note to also change second sentence to "The 1000BASE-X PCS and 2.5GBASE-X PCS require signal detect to be one before synchronization can occur."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.5.3.6** *P* **43** *L* **41** # i-142

Mcclellan, Brett

Comment Type **E** *Comment Status* **A**

Late Comment:
should be "PCS:O" instead of "AN:M"

SuggestedRemedy

on lines 41 and 44 change "AN:M" to "PCS:O"

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.5.3** *P* **43** *L* **50** # i-143

Mcclellan, Brett

Comment Type **T** *Comment Status* **A**

Late Comment:
Missing PICS for autonegotiation registers

SuggestedRemedy

Add editors note and table indicating PICS for normative items in 45.2.7

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.2** *P* **69** *L* **34** # i-144

Mcclellan, Brett

Comment Type **E** *Comment Status* **A**

Late Comment:
use "alternating" instead of "other" to indicate that "1 of every 2 sequence ordered sets on the XGMII is ignored"

SuggestedRemedy

change "other" to "alternating"

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.5.10** *P* **74** *L* **47** # i-145

Mcclellan, Brett

Comment Type **E** *Comment Status* **A**

Late Comment:
(SPD) should appear at the end of the line

SuggestedRemedy

move "(SPD)" to after "delimiter"

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.5** *P* **71** *L* **45** # i-146

Mcclellan, Brett

Comment Type **G** *Comment Status* **A**

Late Comment:
Is 'X' intended to mean 'Don't Care'?

SuggestedRemedy

change "X" to "Don't care"

Response *Response Status* **C**

ACCEPT.

Cl **127** *SC* **127.2.4.5** *P* **71** *L* **19** # i-147

Mcclellan, Brett

Comment Type **G** *Comment Status* **A**

Late Comment:
"next_seq_s2s3" is presented without definition

SuggestedRemedy

add a note below the table: "next_seq_s2s3 is TRUE when the next four GPII octets represent the S2 and S3 sequence ordered set and FALSE otherwise."

Response *Response Status* **C**

ACCEPT.